

CLEAN COPY OF CLAIMS

1. (Twice Amended) A multilayer interconnection substrate comprising:

B1
an uppermost interconnection layer having a plurality of terminal pads formed at positions corresponding to a plurality of external connection terminals provided on a semiconductor element which is to be mounted on said multilayer interconnection substrate;

a metal column formed on each of said terminal pads, and having a top surface;

a resin film covering a side surface of said metal column, and having a top surface;

and

insulating or insulation
an insulating layer formed on said uppermost interconnection layer so that a gap is formed between the insulating layer and an outer peripheral surface of said resin film, wherein an upper end surface of each metal column is at the same height as an upper surface of the insulating layer,

Sub C1
the top surface of the metal column and the top surface of the resin film covering the side surface of the metal column are formed at the same level of height; and

the top surface of the metal column is surrounded by and exposed on the resin film so that the top surface of the resin film forms a pad for connection with a semi-conductor element.

11. (Twice Amended) A semiconductor device comprising:

B2
a multilayer interconnection substrate which comprises an uppermost interconnection layer having a plurality of terminal pads formed at positions corresponding to a plurality of external connection terminals provided on a semiconductor element which is to be mounted on said multilayer interconnection substrate; a metal column formed on each of said terminal pads and having a top surface; a resin film covering a side surface of said metal column and

B2
having a top surface; and an insulating layer formed on said uppermost interconnection layer so that a gap is formed between the insulating layer and an outer peripheral surface of said resin film, wherein an upper end surface of each metal column is [substantially] at the same height as an upper surface of the insulating layer,

the top surface of the metal column and the top surface of the resin film covering the side surface of the metal column are formed at the same level of height; and

the top surface of the metal column is surrounded by and exposed on the resin film so that the top surface of the resin film forms a pad for connection with a semi-conductor element.

B3
6K1
13. (Twice Amended) A semiconductor device comprising:

a multilayer interconnection substrate manufactured by forming a plurality of terminal pads in an uppermost interconnection layer; forming an insulating layer on said uppermost interconnection layer; forming openings in said insulating layer, the openings located at positions corresponding to said terminal pads; filling each of said openings with metal particles; forming a metal column in each of said openings by heating said metal particles at a temperature which melts said metal particles so as to define a metal column top surface; and removing a part of said insulating layer near but not adjacent to a peripheral side of said metal column, while leaving a part of said insulating layer adjacent to said peripheral side of said metal column, so that a gap is formed around but not adjacent to said peripheral side of said metal column, wherein the top surface of each metal column is at the same height as an upper surface of the insulating layer.